

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A network element for use in an optical communication network, in particular a dense wavelength division multiplex (DWDM) communication network, the network element comprising:

- a plurality of receivers for receiving optical communication signals,
- a plurality of transmitters for transmitting optical communication signals, ~~and~~
- a plurality of network connections, each network connection having an individual signal impairment characteristic, and
- a memory that stores a parameter corresponding to said individual signal impairment characteristic,

wherein the pluralities of receivers and transmitters employ a plurality of different modulation ~~schemes~~formats, and

wherein the pluralities of receivers and transmitters are assigned to the network connections as a function of the individual signal impairment characteristics, as determined by said stored parameter.

2. (currently amended): The network element of claim 1, further comprising a multiplexer adapted to multiplex optical communication signals from the plurality of transmitters employing different modulation ~~schemes~~formats onto a single optical output fiber.

3. (currently amended): The network element of claim 1, further comprising a demultiplexer adapted to demultiplex optical communication signals from a single optical input fiber to the plurality of receivers employing different modulation ~~schemes~~formats.

4. (currently amended): The network element of claim 1, further comprising a lightpath provisioning unit configured to select one from the plurality of transmitters for a signal to be transmitted as a function of ~~an~~the impairment parameter corresponding to a desired network connection.

5. (original): The network element of claim 4, wherein the impairment parameter is a distance from the network element to a target node.

6. (currently amended): The network element of claim 1, wherein the plurality of modulation ~~schemes~~formats comprises direct modulation and external modulation of the optical communication signals to be transmitted.

7. (currently amended): The network element of claim 1, wherein the plurality of receivers and transmitters employ~~modulation schemes comprises~~ a plurality of different carrier wavelengths for modulation.

8. (currently amended): The network element of claim 1, wherein the plurality of ~~modulation schemes comprises~~ receivers and transmitters employ a plurality of different bit rates.

9. (previously presented): An optical communication network comprising a plurality of nodes connected by a plurality of network connections, wherein at least some of the nodes comprise a network element as defined in claim 1.

10. (previously presented): A use of a network element as defined in claim 1 for upgrading an optical communication network in terms of distances allowed between network elements.

11. (currently amended): A method of communicating messages within an optical communication network, in particular a dense wavelength division multiplex (DWDM) communication network, the method comprising the steps of:

- providing a message which is to be transmitted from a source network element to a destination network element,
- modulating an optical carrier signal with the message in the source network element, and
- transmitting the modulated carrier signal across a network connection to the destination network element,

- storing a parameter corresponding to said individual signal impairment characteristic in a memory,

wherein the step of modulating comprises a first sub-step of determining an individual signal impairment characteristic of the network connection, and a second sub-step of selecting a modulation ~~scheme~~ format from a plurality of different modulation ~~schemes~~ formats as a function of the individual signal impairment characteristic determined by said parameter.

12. (new): The method of claim 11, further comprising multiplexing optical communication signals from a plurality of transmitters employing different modulation formats onto a single optical output fiber.

13. (new): The method of claim 12, further comprising demultiplexing optical communication signals from a single optical input fiber to a plurality of receivers employing said different modulation formats.

14. (new): The method of claim 12, further comprising selecting one from the plurality of transmitters for a signal to be transmitted as a function of the impairment parameter corresponding to a desired network connection.

15. (new): The method of claim 14, wherein the impairment parameter is a distance from the source network element to a target network element.

16. (new): The method of claim 11, wherein the plurality of modulation formats comprises direct modulation and external modulation of the optical communication signals to be transmitted.

17. (new): The method of claim 11, wherein a plurality of different carrier wavelengths are employed for modulation.

18. (new): The method of claim 11, wherein a plurality of different bit rates are employed for modulation.

19. (new): The method of claim 11, further comprising upgrading an optical communication network in terms of distances allowed between network elements.